Amendments to the Specification

Please add the following paragraph between the title and the first line of text as follows:

This is a Division of Application No. 09/856,852 filed May 29, 2001. The entire disclosure of the prior application is hereby incorporated by reference herein in its entirety.

~~DESCRIPTION~~

Page 1, between lines 2 and 3, insert:

BACKGROUND OF THE INVENTION

Page 1, line 3, delete current heading and inset therefor:

~~Technical Field~~1. Field of the Invention

Please replace paragraph **[0001]** as follows:

[0001] The present invention relates to a large EL panel formed by a plurality of EL display devices, such as organic EL panels, which are arranged in a matrix pattern, and also relates to a manufacturing method for the large EL panel.

Page 1, line 7, delete current heading and insert therefor:

~~Background Art~~2. Description of the Related Art

Please replace paragraphs **[0002]-[0005], [0007]-[0009]** and **[0011]** as follows:

[0002] Small EL flat panels (EL display devices) driven by polysilicon TFTs are usually laminated on a hard and transparent substrate by an adhesive, etc., in order to maintain the flatness thereof. Each of the ~~The~~ TFTs control the driving of one of multiple pixels in the EL display devices ~~individually~~, so that plane images are displayed.

[0003] The EL display devices as described above are typically two to six inches in length measured in a diagonal direction, and provide excellent functions as small image displays.

[0004] Conventionally, in theaters and stadiums, large screens, which are capable of displaying clear images, are commonly used in place of electrical scoreboards. In such large screens, a plurality of light sources, such as the above-described EL display devices, light bulbs are arranged in a matrix pattern. Each of the light sources functions as a pixel for forming an image.

[0005] In such theaters and stadiums, there is a sufficient distance between the screen and the audience; therefore, the EL display devices having a diagonal ~~size~~ length of, for example, several inches should not be a problem.

[0007] In a liquid crystal display, an additional light source is required as a backlight. Thus, to increase the size of the liquid crystal display, the size of the backlight must also be increased. The present situation, however, is such that when a large (50 to 100 inches in diagonal length) and thin display is required, an amount of heat, which increases along with the size of the backlight, will be too large. In addition, the thickness of the display cannot be made thin enough to satisfy the requirement.

[0008] Accordingly, the use of the EL display devices driven by TFTs, which will be referred to as TFT-EL display devices in the following disclosure, has been considered. In the TFT-EL display devices, the backlights are not required. In addition, due to the use of the TFTs, the number of pixels may be increased, and response rate becomes higher, so that high-resolution images may be displayed.

[0009] Large TFT-EL display devices, however, have not been realized. Accordingly, to form a large display panel which is 20 to 100 inches in diagonal length, small TFT-EL display devices, which are several inches in diagonal length, must be arranged in a matrix pattern.

[0011] In addition, a TFT array includes not only a pixel section but also a circuit (driver) section for individually controlling the light emission at the pixels. The circuit

section is disposed at a region outside of an image forming area, and prevents the adjacent EL display devices from being arranged in close proximity to each other.

Page 2, between lines 14 and 15, insert:

SUMMARY OF THE INVENTION

Please replace paragraph **[0012]** as follows:

[0012] In consideration of the above-described ~~facts~~ structures and their limitations, an object of the present invention is to provide a large EL display panel and a manufacturing method ~~therefor~~ thereof, in which a plurality of EL display devices are arranged in a matrix pattern, and in which a pitch between the pixels in the pixel section of the TFT array is maintained constant.

Page 2, line 20, delete current heading.

Please replace paragraphs **[0013]-[0016], [0018], [0019]** and **[0022]** as follows:

~~Disclosure of Invention~~

[0013] The present invention provides a large EL panel ~~comprising~~ including a plurality of EL display devices which are arranged in a matrix pattern on a main transparent substrate which is capable of supporting multiple EL display devices~~;~~. Each ~~each~~ of the EL display devices ~~including~~ includes: a base layer over which a luminescent material is applied; an electrode layer which is laminated on one side of the base layer; and a TFT layer. The TFT layer includes ~~including~~ a circuit section in which light emission of the luminescent material is controlled by applying a predetermined voltage between the electrode layer and the TFT layer and a pixel section which is superimposed over the other side of the base layer and which is provided with a plurality of pixels which divide the base layer into sections so that light emission of the luminescent material in each section is individually controlled by generating a potential difference between the electrode layer and the TFT layer at the corresponding section. ~~, wherein the~~ The circuit section of the TFT layer, which is disposed

at the region outside a light emitting area, is disposed behind the adjacent EL display device so that light emitting areas of the adjacent EL display devices are arranged in proximity to each other ~~with~~ and separated by a predetermined ~~amount of~~ gap.

[0014] In addition, the present invention also provides a manufacturing method for a large EL panel in which a plurality of EL display panels are used, each of the EL display panels being constructed of the above-described EL display device and a ~~sub~~ sub-transparent substrate ~~for supporting~~ that supports the EL display device. The ~~, the~~ manufacturing method for the large EL display panel ~~comprising~~ includes the steps of: removing the EL display devices from the ~~sub~~ sub-transparent substrates; arranging the obtained EL display devices on a main transparent substrate, which is broader than the ~~sub~~ sub-transparent substrate, in a matrix pattern and in a manner such that light emitting areas of the adjacent EL display devices are in proximity to each other; and disposing and fixing the circuit section of the TFT layer, which is disposed at the region outside the light emitting area, behind the adjacent EL display device.

[0015] In the case in which a large display panel is formed by using the EL display devices, ~~there has been~~ a problem ~~in~~ has occurred that ~~sub~~ sub-transparent substrates, which are larger than the EL display devices, prevent the EL display devices from being arranged in proximity to each other. Accordingly, by applying, for example, separation and transfer techniques described in Japanese Unexamined Patent Application Publication Nos. 10-125930 and 10-125931, it is possible to arrange the EL display devices in proximity to each other.

[0016] With the above-described techniques, the EL display devices may be separated from the ~~sub~~ sub-transparent substrates by applying a mechanical or chemical force to adhesive layers which are disposed therebetween, and may be transferred to another substrate.

[0018] The manufacturing process of the large EL display panel will be described below. First, the EL display devices are removed from the ~~sub~~ sub-transparent substrates by using the above-described separation and transfer technique. Then, the EL display devices are arranged on a main transparent substrate, which is broader than the sub- ~~sub~~ transparent substrate, in a matrix pattern in a manner such that the light emitting areas of the adjacent EL display devices are in proximity to each other. Then~~And then~~, the circuit section of the TFT layer, which is disposed at the region outside the light emitting area, is disposed and fixed behind the adjacent EL display devices.

[0019] According to the present invention, the EL display devices are several inches in diagonal length, and the main transparent substrate is 20 to 100 inches in diagonal length.

[0022] Alternatively, a step portion that changes ~~for changing~~ the positions of the adjacent EL display devices in the thickness direction may be provided so as to dispose the circuit section behind the adjacent EL display device.

Page 4, line 23, delete current heading and insert therefor:

~~Brief Description of the Drawings~~

BRIEF DESCRIPTION OF THE DRAWINGS

Please replace paragraph **[0024]** as follows:

[0024] Fig. 1 is a front view of a large EL panel according to a first embodiment of the invention;~~.~~

Fig. 2 is an enlarged view of a ~~part~~ portion of Fig. 1;~~.~~

Fig. 3 is a sectional view of an EL display device;~~.~~

Fig. 4 is a sectional view of the EL display device and a sub- ~~sub~~ transparent substrate, which are separated from each other;~~.~~

Fig. 5 is a sectional view of EL display devices which are adjacently disposed on a main transparent substrate;~~.~~

Fig. 6 is a perspective view showing a manner in which circuit sections of TFT layers are disposed under the adjacent EL display devices;

Fig. 7 is a front view of the EL display devices which are disposed adjacently to each other on the main substrate;

Fig. 8 is a detailed sectional view of the adjacent EL display devices which are disposed on the main substrate;

Fig. 9 is a sectional view of a large EL panel according to a second embodiment of the present invention, showing a ~~construction~~ structure in which the circuit section of the TFT layer is disposed;

Fig. 10 is a sectional view of a large EL panel according to a third embodiment of the present invention, showing a ~~construction~~ structure in which the circuit section of the TFT layer is disposed;

Fig. 11 is a front view of TFT layers including circuit sections, which are incorporated in a fourth embodiment of the present invention;

Fig. 12 is a front view of TFT layers including circuit sections, which are incorporated in a fifth embodiment of the present invention;

Fig. 13 is a ~~process~~ chart ~~of~~ showing a manufacturing process for EL panels.

Page 5, line 16, delete current heading and insert therefor:

~~Best Mode for Carrying Out the Invention~~

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Please replace paragraphs **[0025]-[0027], [0029], [0030], [0033], [0040], [0051] [0053], [0055], [0057]** and **[0058]** as follows:

[0025] Fig. 1 shows a large EL display panel 10 according to the present embodiment. The large EL display panel 10 includes a main transparent substrate 12 on which four EL display devices 14A, 14B, 14C, and 14D are arranged in a matrix pattern (in

the present embodiment, x × y = 2 × 2). The EL display devices 14A, 14B, 14C, and 14D have the same ~~construction~~ structure, and are denoted as EL display devices 14 below when they are generically described.

[0026] As shown in Fig. 2, the EL display devices 14, which are driven by polysilicon TFTs, are divided into a plurality of pixels, and light emission (and gradation) at each pixel is controlled individually. The EL display devices 14 are limited in size: a single EL display device is several (2 to 6) inches in diagonal length. Thus, to form a display, which is, for example, a dozen inches to a hundred inches in diagonal length, a plurality of EL display devices 14 must be arranged in a matrix pattern.

[0027] In Fig. 1, a display which is approximately 20 inches in diagonal length is constructed by the four EL display devices 14. This size is approximately the same as the size ~~'A3'~~ "A3" according to the Japanese Industrial Standard (JIS).

[0029] The EL display device 14 incorporated in the present embodiment is prepared as a product, that is, an EL panel 16, in which the EL display device 14 is laminated on a sub-~~sub~~ transparent substrate 18 via an adhesive layer 20.

[0030] More specifically, in the EL panel 16, the EL display device 14 is supported by the sub-~~sub~~ transparent substrate 18 in a manner such that the EL display device 14 is parallel to the sub-~~sub~~ transparent substrate 18. In the present embodiment, the EL display device 14 is separated from the sub-~~sub~~ transparent substrate ~~16~~ 18 at the adhesive layer 20, as shown in Fig. 4. By using a separation and transfer technique, only the EL display device 14 is removed from the sub-~~sub~~ transparent substrate 18.

[0033] The circuit section 22C includes a driver ~~for controlling~~ that controls the light emission at each pixel, and is disposed along two adjoining sides of the TFT layer 22.

[0040] In each of the EL panels 16, the required EL display device 14 is laminated on the sub-~~sub~~ transparent substrate 18 by the adhesive layer 20. The EL display device 14 is

removed from the sub- ~~sub~~ transparent substrate 18 at the adhesive layer 20 by applying the above-described separation and transfer technique.

[0051] As shown in Fig. 10, in the third embodiment, the transparent electrode layer ~~26~~(not shown) is laminated on the main transparent substrate 12 as a first layer. In addition, the base layer 24 is provided as a second layer, and the TFT layer 22 is provided as a third layer. Accordingly, the transparent electrode layer ~~26~~, the base layer 24, and the TFT layer 22 are laminated inversely compared to the manner in the first and the second embodiment. In addition, the thickness of the pixel section 22P of the TFT layer 22 is double compared to that in the adjacent EL display device 14, which is the standard thickness. The base layer 24 is fixed to the main transparent substrate 12 via an adhesive layer 28.

[0053] In the above-described second and third embodiments, the process of bending the TFT layer 22 at the boundary between the circuit section 22C and the pixel section 22P is not required. Thus, although ~~the~~ modifications, such as changing of the thickness of the layers, are required, the TFT layer 22 does not receive any load, so that problems, such as contact failures, are avoided.(Fourth Embodiment)

[0055] Fig. 12 shows a second modification in which the EL display devices 14 disposed at the right side and at the left side have different ~~constructions~~ structures. More specifically, the circuit sections 22C are disposed at symmetrical regions in the TFT layers 22. According to such a ~~construction~~ structure, the circuit sections 22C do not overlap on the adjacent EL display devices 14.

[0057] Fig. 13 shows an actual manufacturing process of the EL panel 16 which is used ~~for obtaining the~~ to achieve a large EL display panel 10.

[0058] The EL display devices 14 are formed by the processes shown in Fig. 13, which are described in order starting from the top. The order of the processes is: forming TFTs → forming an insulating interlayer → forming contact holes → forming a transparent

electrode layer → forming banks → forming a hole transfer layer → forming an EL layer → forming an electrode layer.

Page 9, line 29, delete current heading.

Please replace paragraph **[0059]** as follows:

~~Industrial Applicability~~

[0059] As described above, the following ~~effects are obtained~~ advantages are achieved by the large EL and the manufacturing method ~~therefor~~ thereof according to the present invention. That is, in the case in which a plurality of EL display devices are arranged in a matrix pattern, the pitch between the pixels provided in the pixel section of the TFT array is maintained constant.